

CLAIMS

1. A rotary vane compressor which exhibits reduced sound of operation and includes:

- a motor having a six-pole rotor and 4-pole stator;
- 5 a non-vented housing surrounding said motor;
- a non-vented back or closure secured to said motor housing;
- a drive shaft extending from and operatively associated with said motor;
- a rear plate for support of said drive shaft;
- a pair of deep groove ball bearings for supporting said drive shaft and
- 10 having a sound dampening grease sealed within each bearing;
- a rotor with vane receiving slots mounted to the drive shaft for rotation therewith, wherein the angular relation at the rotor surface between the vane slot and a line passing through the rotor center and normal to an adjacent vane slot is between about 23° and 25°;
- 15 a body which defines a cavity within which the rotor rotates, which body is fabricated of a sound dampening gray iron and has a weight of at least about 4.63 lbs;
- a non-vented shroud which surrounds the body and is fabricated from a laminated layer of steel and a sound dampening material;
- 20 an inlet ring engaging the motor housing and the rear plate which is circular and has an outside diameter and an inside diameter, wherein the difference between the outside and inside diameters has been minimized;

a front plate engaging the body in defining a pair of air conducting chambers; and

a muffler box which engages the front plate and defines an inlet port and an outlet port, each of which communicates with one of said chambers.

5 2. A rotary vane compressor as in claim 1 wherein the level of sound emanating from the compressor housing operation is about 50 dB.

3. A rotary vane compressor as in claim 1 wherein the angular relation of the rotor and vane slot is about 24°.

4. A rotary vane compressor as in claim 3 wherein a vane is provided
10 in each vane slot, is slidable therein and each vane weighs about 6.75 grams.

5. A rotary vane compressor as in claim 1 wherein said laminated shroud includes an acrylic sound dampening material.

6. A rotary vane compressor as in claim 1 wherein said motor housing is less than about 5 inches in length.

15 7. A rotary vane compressor as in claim 1 wherein said body is substantially circular and has a radius of at least about 2.6 inches.